WHAT IS CLAIMED IS:

1. A hot-rolled steel strip having superior low temperature toughness and weldability for a high strength electric resistance welding pipe, comprising: on a mass percent basis,

about 0.005 to about 0.04% of C;

about 0.05 to about 0.3% of Si;

about 0.5 to about 2.0% of Mn;

about 0.001 to about 0.1% of Al;

about 0.001 to about 0.1% of Nb;

about 0.001 to about 0.1% of V;

about 0.001 to about 0.1% of Ti;

about 0.03% or less of P;

about 0.005% or less of S;

about 0.006% or less of N;

at least one selected from the group consisting of about 0.5% or less of Cu, about 0.5% or less of Ni, and about 0.5% or less of Mo; and

the balance being Fe and incidental impurities,

wherein Pcm represented by the following equation (1) is 0.17 or less:

$$Pcm = (\%C) + (\%Si)/30 + ((\%Mn) + (\%Cu))/20 + (\%Ni)/60 + (\%Mo)/7 + (\%V)/10 \quad \text{Equation (1),}$$

in which (%M) indicates the content of element M on a mass percent basis, and

the hot-rolled steel strip is composed of bainitic ferrite as a primary phase at a content of about 95 percent by volume or more.

2. The hot-rolled steel strip according to Claim 1;

wherein the ratio in percent of the amount of precipitated Nb to the total amount of Nb is from about 5 to about 80%.

3. The hot-rolled steel strip according to Claim 1;

further comprising about 0.005% or less of Ca and/or REM on a mass percent basis.

4. The hot-rolled steel strip according to Claim 2;

further comprising about 0.005% or less of Ca and/or REM on a mass percent basis.

5. The hot-rolled steel strip according to Claim 1;

further comprising at least one component selected from the group consisting of about 0.1% or less of Cr and about 0.003% or less of B,

wherein Pcm' represented by the following equation (2) is 0.17 or less:

$$Pcm' = (\%C) + (\%Si)/30 + ((\%Mn) + (\%Cu) + (\%Cr))/20 + (\%Ni)/60 + (\%Mo)/7 + (\%V)/10$$

Equation (2),

in which (%M) indicates the content of element M on a mass percent basis.

6. The hot-rolled steel strip according to Claim 2;

further comprising at least one component selected from the group consisting of about 0.1% or less of Cr and about 0.003% or less of B,

wherein Pcm' represented by the following equation (2) is 0.17 or less:

Pcm' = (%C) + (%Si)/30 + ((%Mn) + (%Cu) + (%Cr))/20 + (%Ni)/60 + (%Mo)/7 + (%V)/10
Equation (2),

in which (%M) indicates the content of element M on a mass percent basis.

7. The hot-rolled steel strip according to Claim 3;

further comprising at least one component selected from the group consisting of about 0.1% or less of Cr and about 0.003% or less of B,

wherein Pcm' represented by the following equation (2) is 0.17 or less:

Pcm' = (%C) + (%Si)/30 + ((%Mn) + (%Cu) + (%Cr))/20 + (%Ni)/60 + (%Mo)/7 + (%V)/10
Equation (2),

in which (%M) indicates the content of element M on a mass percent basis.

8. The hot-rolled steel strip according to Claim 4;

further comprising at least one component selected from the group consisting of about 0.1% or less of Cr and about 0.003% or less of B,

wherein Pcm' represented by the following equation (2) is 0.17 or less:

Pcm' = (%C) + (%Si)/30 + ((%Mn) + (%Cu) + (%Cr))/20 + (%Ni)/60 + (%Mo)/7 + (%V)/10
Equation (2),

in which (%M) indicates the content of element M on a mass percent basis.

9. A method for manufacturing a hot-rolled steel strip having superior low temperature toughness and weldability for a high strength electric resistance welding pipe, comprising:

heating a steel slab having a composition according to Claim 1 to a temperature of about 1,000 to about 1,300℃;

finish rolling the heated steel slab to form a steel strip;

completing finish rolling under the condition in which the steel strip has a surface temperature of about (Ar_3 - 50℃) or more;

cooling the steel strip immediately after finish rolling; and

coiling the steel strip at a temperature of about 700℃ or less for slow cooling.

10. A method for manufacturing a hot-rolled steel strip having superior low temperature toughness and weldability for a high strength electric resistance welding pipe, comprising:

heating a steel slab having a composition according to Claim 2 to a temperature of about 1,000 to about 1,300℃;

finish rolling the heated steel slab to form a steel strip;

completing finish rolling under the condition in which the steel strip has a surface temperature of about (Ar_3 - 50℃) or more;

cooling the steel strip immediately after finish rolling; and

coiling the steel strip at a temperature of about 700℃ or less for slow cooling.

11. A method for manufacturing a hot-rolled steel strip having superior low temperature toughness and weldability for a high strength electric resistance welding pipe, comprising:

heating a steel slab having a composition according to Claim 3 to a temperature of about 1,000 to about 1,300℃;

finish rolling the heated steel slab to form a steel strip;

completing finish rolling under the condition in which the steel strip has a surface temperature of about (Ar_3 - 50℃) or more;

cooling the steel strip immediately after finish rolling; and

coiling the steel strip at a temperature of about 700℃ or less for slow cooling.

12. A method for manufacturing a hot-rolled steel strip having superior low temperature toughness and weldability for a high strength electric resistance welding pipe, comprising:

heating a steel slab having a composition according to Claim 4 to a temperature of about 1,000 to about 1,300℃;

finish rolling the heated steel slab to form a steel strip;

completing finish rolling under the condition in which the steel strip has a surface temperature of about (Ar_3 - 50℃) or more;

cooling the steel strip immediately after finish rolling; and

coiling the steel strip at a temperature of about 700℃ or less for slow cooling.

13. A method for manufacturing a hot-rolled steel strip having superior low temperature toughness and weldability for a high strength electric resistance welding pipe, comprising:

heating a steel slab having a composition according to Claim 5 to a temperature of about 1,000 to about 1,300℃;

finish rolling the heated steel slab to form a steel strip;

completing finish rolling under the condition in which the steel strip has a surface temperature of about (Ar_3 - 50℃) or more;

cooling the steel strip immediately after finish rolling; and

coiling the steel strip at a temperature of about 700℃ or less for slow cooling.

14. A method for manufacturing a hot-rolled steel strip having superior low temperature toughness and weldability for a high strength electric resistance welding pipe, comprising:

heating a steel slab having a composition according to Claim 6 to a temperature of about 1,000 to about 1,300℃;

finish rolling the heated steel slab to form a steel strip;

completing finish rolling under the condition in which the steel strip has a surface temperature of about (Ar_3 - 50℃) or more;

cooling the steel strip immediately after finish rolling; and

coiling the steel strip at a temperature of about 700℃ or less for slow cooling.

15. A method for manufacturing a hot-rolled steel strip having superior low temperature toughness and weldability for a high strength electric resistance welding pipe, comprising:

heating a steel slab having a composition according to Claim 7 to a temperature of about 1,000 to about 1,300℃;

finish rolling the heated steel slab to form a steel strip;

completing finish rolling under the condition in which the steel strip has a surface temperature of about (Ar_3 - 50℃) or more;

cooling the steel strip immediately after finish rolling; and

coiling the steel strip at a temperature of about 700℃ or less for slow cooling.

16. A method for manufacturing a hot-rolled steel strip having superior low temperature toughness and weldability for a high strength electric resistance welding pipe, comprising:

heating a steel slab having a composition according to Claim 8 to a temperature of about 1,000 to about 1,300℃;

finish rolling the heated steel slab to form a steel strip;

completing finish rolling under the condition in which the steel strip has a surface temperature of about (Ar_3 - 50℃) or more;

cooling the steel strip immediately after finish rolling; and

coiling the steel strip at a temperature of about 700℃ or less for slow cooling.